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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,690	09/26/2003	Eal H. Lee	H0002184 US (4780)	9265
23639	7590	07/05/2005	EXAMINER	
BINGHAM, MCCUTCHEN LLP THREE EMBARCADERO CENTER 18 FLOOR SAN FRANCISCO, CA 94111-4067			VERSTEEG, STEVEN H	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/672,690

Applicant(s)

LEE, EAL H.

Examiner

Steven H. VerSteeg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15 and 17-27 is/are rejected.
- 7) ☒ Claim(s) 6 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/9/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in EPO on June 17, 2003. It is noted, however, that applicant has not filed a certified copy of the EPO application as required by 35 U.S.C. 119(b).

### ***Specification***

3. The disclosure is objected to because of the following informalities: the status of the applications listed on page 12 needs to be updated.

Appropriate correction is required.

### ***Claim Objections***

4. Claims 5 and 6 are objected to because of the following informalities: "the , at" needs corrected in claim 5 at line 1. Claim 6 depends from claim 5 and contains all of the limitations of claim 5. Therefore, claim 6 is objected to for the same reasons as claim 5. Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 5, 7-12, 15, and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,632,869 to Hurwitt et al. (Hurwitt).

7. For claim 1, Applicant requires a sputtering target comprising a core material and a surface material coupled to the core material and comprises at least two indentations that form a collimating topography.

8. Hurwitt discloses a sputtering target (abstract) comprising a core material **10** and a surface material **16**. The surface material has at least two indents (Figure 2). Hurwitt does not explicitly disclose that the indentations collimate the sputtered particles. However, mere silence does not mean that collimation is not occurring. Hurwitt has indentations in the surface, just as Applicant has. These indentations are exemplified, in one example, to be 0.025" deep by 0.0625" wide (col. 4, l. 60-62). This appears to be sufficient to provide some collimation effect.

9. It cannot be disputed that some particles will be sputtered from the front surface of the target. Applicant's Figure 1 provides a very good example of the situation. Hurwitt has indentations in the surface. Material would inherently be sputtered from those surfaces. Applicant's Figure 3 provides another good example. It would be unreasonable to say that some material would not be sputtered from the indentations. Hurwitt admits as much (col. 4, l. 2-7). Thus, the materials would inherently leave the target surfaces in a haphazard manner.

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10. The material that would leave the indentations would inherently be haphazardly leaving the surface because that is how particles leave a sputtering surface. Because of the indentations, some of the haphazardly leaving material would strike the other side of the indentation and hence, be collimated. Therefore, the indentations in Hurwitt inherently collimate the sputtered target material leaving the surfaces of the indentations. Admittedly, any flat surface outside the indentation would not be collimated, but at least some of the material within the indentation, when sputtered, would be collimated. That is sufficient to meet the claim limitations claimed by Applicant.

11. For claim 11, Applicant requires a method of forming a self-collimating sputtering target comprising providing a core material, providing a surface material, coupling the core to the surface, and forming at least two indents in the surface material.

12. Hurwitt, as mentioned above, discloses the core and surface with at least two indents. The core and surface are coupled to each other (Figures 1 and 2).

13. For claims 2 and 12, Applicant requires the core and surface to comprise the same chemical component. Because the surface is a part of the core, it is inherently made of the same material as the core.

14. For claims 5 and 15, Applicant requires at least two indentations that comprise a macroscale modification. The indentations cover the whole surface. Therefore, they comprise a macroscale modification.

15. For claims 7 and 17, Applicant requires the two indentations to comprise at least one microdimple. The indentations are equivalent to a microdimple.

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16. For claims 8 and 18, Applicant requires the at least one microdimple to comprise a circular closed loop opening. For claims 9 and 19, Applicant requires it to be a hexagonal closed loop opening. For claims 10 and 20, Applicant requires the at least two indentations to comprise a macroscale modification and at least one microdimple. The notches in the target can be considered a macroscale modification and at least one microdimple.

17. For claim 21, Applicant requires a method of forming a uniform film on a surface comprising providing a self-collimating sputtering target, providing a surface, placing the surface at a distance from the target, bombarding the target with an energy source to form at least one atom, and coating the surface with the at least one atom. For claim 23, Applicant requires a film made from the target. Hurwitt discloses forming a film with the target (Claim 1).

18. For claim 22, Applicant requires a film made from the target made in claim 11. Hurwitt discloses forming a film from the target (Claim 1).

***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 3, 4, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,632,869 to Hurwitt et al. (Hurwitt) in view of US 5,693,203 to Ohhashi et al. (Ohhashi).

21. For claims 3, 4, 13, and 14, Applicant requires the chemical component to be tantalum.

22. Hurwitt is described above, but does not describe the material of the target.

23. Ohhashi discloses that sputtering targets can be made of tantalum (col. 4, l. 61-64).

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24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Hurwitt to use tantalum as the sputtering target material because of the desire to for a tantalum layer by sputtering.

25. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,632,869 to Hurwitt et al. (Hurwitt) in view of US 4,544,091 to Hidler et al. (Hidler).

26. For claims 24 and 25, Applicant requires a component formed from the sputtering target. For claims 26 and 27, Applicant requires a capacitor formed from the target.

27. Hurwitt is described above, but does not disclose what the sputtering target can make.

28. Hidler discloses that sputtering targets can be used to form dielectric layers in components such as capacitors (col. 1, l. 15-29).

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hurwitt to for a component such as a capacitor with the target because of the desire to form a dielectric layer.

***Allowable Subject Matter***

30. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

31. Claim 6 would be allowable if written to overcome the claim objection presented above.

32. The following is a statement of reasons for the indication of allowable subject matter: it is neither anticipated nor obvious over the prior art of record to have a sputtering target as claimed by Applicant in claim 6 or a method of forming a self-collimating sputtering target as claimed by Applicant in claim 16.

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33. Neither Hurwitt nor Ohhashi nor Hidler disclose or suggest a circular wave contour as a macroscale modification in an indent of a sputtering target. There is no motivation to provide such a limitation in any of the references.

### ***General Information***

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (571) 272-1700.

For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Denis Boyd at (571) 272-0992.

For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (571) 272-1300.

### ***Conclusion***

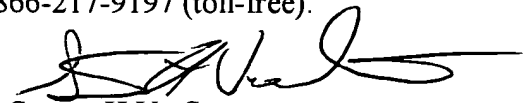
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. VerSteeg whose telephone number is (571) 272-1348. The examiner can normally be reached on Mon - Thurs (6:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven H VerSteeg  
Primary Examiner  
Art Unit 1753

shv  
June 20, 2005